

ABSTRACT

When substantially all features in a layout for a layer of material in an integrated circuit (IC) are defined using a phase shifting mask, the related complementary mask that is normally used to define the remaining features and edges can be improved if intensities in an aerial image from openings on the complementary mask that are below threshold are increased to ensure that each opening meets or exceeds threshold. Such increase of intensities improves effectiveness of critical openings that are otherwise too small to print. Absent intensity increase, such openings could limit the application of optical lithography using phase shifting masks to ever shrinking technologies. The intensities are increased in some embodiments by enlarging some openings in the complementary mask in directions not constrained by features to be formed in an integrated circuit (by use of the phase shifting mask).